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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/717,802	11/20/2003	Alan Michael Jaffee	7303	9711

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EXAMINER	
TORRES VELAZQUEZ, NORCA LIZ	
ART UNIT	**PAPER NUMBER**
1771	

DATE MAILED: 09/26/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/717,802	JAFFEE ET AL.	
	Examiner	Art Unit	
	Norca L. Torres-Velazquez	1771	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 August 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *62-95* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *62-95* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on August 25, 2006 has been entered.

Terminal Disclaimer

2. The terminal disclaimer filed on 7/19/06 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of 10/718,007 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Response to Amendment

3. Claims 62-95 are pending. Independent claim 62 has been amended to now include that the fibrous mat comprises about 90 to about 65 wt. Percent glass fibers, the fiber diameter of the fibers and 10 to about 25 wt. Percent of a binder. The claim further claims that the mat has a Taber stiffness of greater than about 40. Claims 64 and 68 have been amended to further limit the Taber stiffness of the mat to be at least 50.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

5. Claims 62-95 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as

the invention. Independent claim 62 claims a that the mat comprises about 90 to about 65 wt. Percent glass fibers and about 10 to about 25 wt. Percent of a binder. It is noted that when the glass fiber content is 65 wt.% and the binder content is 25 wt %, there is a difference of a 10 wt% not accounted for in the ranges of these materials. Such difference renders the claim indefinite as it is not clear if there is another material not recited in the claim that needs to be there and accounted for. Accordingly, claims 63-95 are rendered indefinite as they are dependent on claim 62.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 62-73, 75-81, 83-89, 91-92 and 94-95 are rejected under 35 U.S.C. 103(a) as being unpatentable over KAJANDER (US 5,837,620) in view of ARKENS et al. (US 5,661,213) and further evidenced by Arkens et al. (US 5,718,728).

KAJANDER relates to mats that contain about 25-75 weight percent fibers and about 15-75 percent binder. The majority of the fibers are glass fibers with diameters in the range of less than 1 up to 23 microns or higher, with the major portion of the fiber being preferably in the range of about 6 to 19 microns and most preferably in the range of about 8 to 16 microns. (Col. 2, lines 57-66) The glass fibers all have about the same target length, such as 0.25, 0.5, 0.75, 1 or 1.25 inch. (Col. 3, lines 6-7) The reference teaches using resins that include formaldehyde to bond the fibers together. (Refer to Col. 3, lines 29-42)

While the mat of KAJANDER provides glass fibers with the presently claimed diameter and length, the reference fails to use a binder that is at least partially cured and comprises before drying and curing a homopolymer or a copolymer of polyacrylic acid and a polyol.

ARKENS et al. relates to a formaldehyde-free curable aqueous composition containing a polyacid, a polyol and a phosphorus-containing accelerator. The composition may be used as a binder for heat resistant nonwovens such as nonwovens composed of fiberglass. (Abstract) The reference teaches that the polyacid may be a compound with a molecular weight less than about 1000 bearing at least two carboxylic acid groups and teaches that it may be a polymeric acid that is preferably an addition polymer formed from at least one ethylenically unsaturated monomer (such as methacrylic acid, acrylic acid, among others). (Refer to Col. 3, lines 45 through Col. 4, lines 1-5) The reference further teaches that the polyol may be triethanolamine (Col. 6, lines 1-6) The formaldehyde-free curable aqueous composition may also contain emulsifiers, pigments, fillers, colorants, wetting agents (*equated to hydrophilic material*), among other components. (Refer to Col. 6, lines 52-57) The reference teaches a nonwoven substrate made from a fiberglass fiber at 1.25 inches in length with a binder add-on of 28%. (Example 3) It is noted that the use of Arkens et al.'s binder (made from polyacrylic acid and triethanolamine), in wood is recognized by the Arkens et al. patent '728 cited herein as evidence of such. (Refer to Col. 20, lines 63-67 through Col. 21, lines 1-29 of Arkens et al. '728)

Since both references are directed to fiberglass mats, the purpose disclosed by ARKENS et al. would have been recognized in the pertinent art of KAJANDER.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the mats of KAJANDER and provide them with the binder

composition of ARKENS et al. with the motivation of producing a heat-resistant nonwovens without formaldehyde as disclosed by ARKENS et al. (Col. 1, lines 11-55). It is noted that KAJANDER recognizes the importance of reducing the levels of VOC emissions produced from formaldehyde containing compounds and by using the binder composition taught by ARKENS et al. such emission are eliminated.

Although the prior art of KAJANDER in combination with ARKENS does not explicitly teach the claimed property of passing the NFPA Method #701 Flammability Test and the claimed Taber stiffness it is reasonable to presume that these properties are inherent to a mat from the combination of KAJANDER and ARKENS. Support for said presumption is found in the use of like materials (i.e. nonwoven mat that includes glass fibers with a binder that prior to curing includes a polyacid and a polyol similar to the one claimed herein). The burden is upon Applicant to prove otherwise. *In re Fitzgerald* 205 USPQ 594. In addition, the presently claimed properties of meeting the NFPA #701 test and Taber stiffness would obviously have been present one the product form the combination of KAJANDER and ARKENS is provided. Note In re Best, 195 USPQ at 433, footnote 4 (CCPA 1977) as to the providing of this rejection made above under 35 USC 102. Reliance upon inherency is not improper even though rejection is based on Section 103 instead of Section 102. *In re Skoner, et al.* (CCPA) 186 USPQ 80

8. Claims 62-95 are rejected under 35 U.S.C. 103(a) as being unpatentable over JAFFEE (US 6,008,147) in view of ARKENS et al. (US 5,661,213).

JAFFEE discloses a fibrous nonwoven mat that comprises glass fibers bound with acrylic copolymer latex. (Col. 1, lines 66 through Col. 2, lines 1-5) The mats contain about 70-85 weight percent fibers and about 15-30 percent acrylic copolymer binder. (Col. 3, lines 34-38)

The glass fibers should be at least 0.75 inch long and the reference further teaches fibers with diameters of at least 13 microns. (Col. 3, lines 46-54) JAFFEE also teaches that the mats can also contain pigments, dyes, flame-retardants, and other additives. (Col. 2, lines 34-38)

While JAFFEE teaches using cross-linking acrylic copolymer resins in the binder, it is silent to the specific composition of it.

ARKENS et al. relates to a formaldehyde-free curable aqueous composition containing a polyacid, a polyol and a phosphorus-containing accelerator. The composition may be used as a binder for heat resistant nonwovens such as nonwovens composed of fiberglass. (Abstract) The reference teaches that the polyacid may be a compound with a molecular weight less than about 1000 bearing at least two carboxylic acid groups and teaches that it may be a polymeric acid that is preferably an addition polymer formed from at least one ethylenically unsaturated monomer (such as methacrylic acid, acrylic acid, among others). (Refer to Col. 3, lines 45 through Col. 4, lines 1-5) The reference further teaches that the polyol may be triethanolamine (Col. 6, lines 1-6) The formaldehyde-free curable aqueous composition may also contain emulsifiers, pigments, fillers, colorants, wetting agents (*equated to hydrophilic material*), among other components. (Refer to Col. 6, lines 52-57) The reference teaches a nonwoven substrate made from a fiberglass fiber at 1.25 inches in length with a binder add-on of 28%. (Example 3)

Since both references are directed to fiberglass mats, the purpose disclosed by ARKENS et al. would have been recognized in the pertinent art of JAFFEE.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the mats of JAFFEE and provide them with the binder

composition of ARKENS et al. with the motivation of producing a heat-resistant nonwovens without formaldehyde as disclosed by ARKENS et al. (Col. 1, lines 11-55).

Although the prior art of JAFFEE in combination with ARKENS does not explicitly teach the claimed properties of passing the NFPA Method #701 Flammability Test and the claimed Taber Stiffness it is reasonable to presume that this property is inherent to a mat from the combination of JAFFEE and ARKENS. Support for said presumption is found in the use of like materials (i.e. nonwoven mat that includes glass fibers with a binder that prior to curing includes a polyacid and a polyol similar to the one claimed herein). The burden is upon Applicant to prove otherwise. *In re Fitzgerald* 205 USPQ 594. In addition, the presently claimed properties of meeting the NFPA #701 test and the claimed Taber stiffness would obviously have been present one the product form the combination of JAFFEE and ARKENS is provided. Note In re Best, 195 USPQ at 433, footnote 4 (CCPA 1977) as to the providing of this rejection made above under 35 USC 102. Reliance upon inherency is not improper even though rejection is based on Section 103 instead of Section 102. *In re Skoner, et al.* (CCPA) 186 USPQ 80

9. Claims 74, 82, 90 and 93 are rejected under 35 U.S.C. 103(a) as being unpatentable over KAJANDER in view of ARKENS et al. or alternatively over JAFFEE in view of ARKENS et al. as applied above, and further in view of BLACK (EP 0378295 A2).

BLACK teaches compositions imparting flame retardant properties to fabrics from synthetic polymer fibers and teaches the use of cyclic organic phosphate. (Abstract)

It is the Examiner's position that it would have been obvious at the time the invention was made to a person having ordinary skill in the art to provide the mat with an organic

phosphate as a flame retardant additive motivated by the desire of providing the fibers with flame retardant properties.

Response to Arguments

10. Applicant's arguments filed August 25, 2006 have been fully considered but they are not persuasive.

a. With regards to the combination of KAJANDER in view of ARKENS, Applicants argue that Kajander teaches how to make nonwoven mats that do bond well to wood, and that the reason that they bond good to wood is because of the formaldehyde binders used in the nonwoven mats and that the formaldehyde resins are only partially cured, i.e. "B" staged. Applicants argue that Arkens et al. do not teach or remotely suggest that their binders bond well to wood, of that if "B" staged that they would cause a nonwoven fiber glass mat to bond well to wood.

It is noted that the use of binders such as that disclosed by Arkens et al. (made from polyacrylic acid and triethanolamine), is recognized in the bonding of wood materials. This is evidenced herein by Arkens et al. patent 5,718,728. (Refer to Col. 20, lines 63-67 through Col. 21, lines 1-29 of Arkens et al. '728) Secondly, it is noted that the secondary reference of ARKENS et al. (US 5,661,213) does teach a "B staging" procedure in the curing of the resin. (Refer to Col. 8, lines 42-60)

b. With regards to the rejections over the combination of JAFFEE in view of ARKENS, Applicants argue that ARKENS et al. do not teach or remotely suggests that their binders bond well to foam, that their binders have a glass transition temperature exceeding 45 degrees C, or that if "B" staged that they would cause a nonwoven fiber glass mat to bond well to foam.

As noted above, Arkens et al. does teach "B" staging of their binder. The reference heat-treats the binder composition at about 120 to about 400 degrees C,

therefore, it must meet a glass transition temperature exceeding 45 degrees C. There is not evidence that the binder will not bond well to foam as argued by Applicants.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Norca L. Torres-Velazquez whose telephone number is 571-272-1484. The examiner can normally be reached on Monday-Thursday 8:00-5:00 pm and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on 571-272-1478. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

September 22, 2006

Norca L. Torres-Velazquez
Primary Examiner
Art Unit 1771